HILLVIEW SUBDIVISION (PWS 7330011)
SOURCE WATER ASSESSMENT FINAL REPORT

November 21, 2002

State of Idaho
Department of Environmental Quality

Executive Summary

Under the Safe Drinking Water Act Amendments of 1996, all states are required by the U.S. Environmental Protection Agency (EPA) to assess every source of public drinking water for its relative sensitivity to contaminants regulated by the act. This assessment is based on a land use inventory of the designated source water assessment area and sensitivity factors associated with the well and aquifer characteristics.

This report, *Hillview Subdivision, Rexburg, Idaho*, describes the public drinking water system, the boundaries of the zones of water contribution, and the associated potential contaminant sources located within these boundaries. This assessment should be used as a planning tool, taken into account with local knowledge and concerns, to develop and implement appropriate protection measures for this source. **The results should not be used as an absolute measure of risk and they should not be used to undermine public confidence in the water system.**

Final susceptibility scores are derived from equally weighting system construction scores, hydrologic sensitivity scores, and potential contaminant/land use scores. Therefore, a low rating in one or two categories coupled with a higher rating in another category(ies) results in a final rating of low, moderate, or high susceptibility. With the potential contaminants associated with most urban and heavily agricultural areas, the best score a well can get is moderate. Potential contaminants are divided into four categories, inorganic chemical (IOC, i.e. nitrates, arsenic) contaminants, volatile organic chemical (VOC, i.e. petroleum products) contaminants, synthetic organic chemical (SOC, i.e. pesticides) contaminants, and microbial contaminants (i.e. bacteria). As different wells can be subject to various contamination settings, separate scores are given for each type of contaminant.

The Hillview Subdivision drinking water system consists of one well source. The well has high susceptibility to IOC, VOC, SOC, and microbial contamination. A pasture with cattle grazing in it is located less than 50 feet from the well, giving an automatic high susceptibility rating to IOC and microbial contamination. The high score for hydrologic sensitivity as well as the intense agricultural land use contributed greatly to the overall susceptibility rating.

No total coliform bacteria were detected in the water system thus far. The IOCs barium and fluoride were detected in the system at levels below the maximum contaminant levels (MCLs). Nitrate concentrations have been consistently below 1.6 mg/L. The MCL for nitrate is 10 mg/L. No VOC or SOC has been recorded for the well during any water chemistry tests. Countywide nitrogen fertilizer use, county level herbicide use, and total county level agricultural chemical use are rated as high for the area. Additionally, the delineation of the well crosses an SOC (herbicide: atrazine) priority area.

This assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what ranking a source receives, protection is always important. Whether the source is currently located in a "pristine" area or an area with numerous industrial and/or agricultural land uses that require surveillance, the way to ensure good water quality in the future is to act now to protect valuable water supply resources. If the system should need to expand in the future, new well sites should be located in areas with as few potential sources of contamination as possible, and the site should be reserved and protected for this specific use.

For the well of the Hillview Subdivision, drinking water protection activities should focus on correcting any deficiencies outlined in the sanitary survey (an inspection conducted every five years with the purpose of determining the physical condition of a water system's components and its capacity), including protection of the well from surface flooding. Also, disinfection practices should be implemented if microbial contamination becomes a problem.

No chemicals should be stored or applied within the 50-foot radius of the wellhead. You may want to consider moving or reducing the use of the pasture to a distance greater than 50 feet from the well to avoid contamination of the well from leaching or runoff. Moving this pasture would reduce the microbial susceptibility from high to moderate. Additionally, there should be a focus on the implementation of practices aimed at reducing the leaching of farm chemicals from agricultural land within the designated source water areas and awareness of the potential contaminant sources within the delineation zones. Since much of the designated protection areas are outside the direct jurisdiction of the Hillview Subdivision, collaboration and partnerships with state and local agencies, and industry groups should be established and are critical to the success of drinking water protection.

Due to the time involved with the movement of ground water, drinking water protection activities should be aimed at long-term management strategies even though these strategies may not yield results in the near term. A strong public education program should be a primary focus of any drinking water protection plan as the delineation is near urban and residential land uses. Public education topics could include proper lawn and garden care practices, household hazardous waste disposal methods, proper care and maintenance of septic systems, and the importance of water conservation to name but a few. There are multiple resources available to help communities implement protection programs, including the Drinking Water Academy of the EPA. As there are transportation corridors through the delineation, the Idaho department of transportation should be involved in protection activities. Drinking water protection activities for agriculture should be coordinated with the Idaho State Department of Agriculture, the Soil Conservation Commission, the local Soil Conservation District, and the Natural Resources Conservation Service.

A community must incorporate a variety of strategies in order to develop a comprehensive drinking water protection plan, be they regulatory in nature (i.e. zoning, permitting) or non-regulatory in nature (i.e. good housekeeping, public education, specific best management practices). For assistance in developing protection strategies please contact the Idaho Falls Regional Office of the Idaho Department of Environmental Quality or the Idaho Rural Water Association.

SOURCE WATER ASSESSMENT FOR THE HILLVIEW SUBDIVISION, REXBURG, IDAHO

Section 1. Introduction - Basis for Assessment

The following sections contain information necessary to understand how and why this assessment was conducted. **It is important to review this information to understand what the ranking of this source means.** Maps showing the delineated source water assessment area and the inventory of significant potential sources of contamination identified within that area are attached. The list of significant potential contaminant source categories and their rankings used to develop the assessment is also included.

Background

Under the Safe Drinking Water Act Amendments of 1996, all states are required by the U.S. Environmental Protection Agency (EPA) to assess every source of public drinking water for its relative susceptibility to contaminants regulated by the Safe Drinking Water Act. This assessment is based on a land use inventory of the delineated assessment area and sensitivity factors associated with the wells and aquifer characteristics.

Level of Accuracy and Purpose of the Assessment

Since there are over 2,900 public water sources in Idaho, there is limited time and resources to accomplish the assessments. All assessments must be completed by May of 2003. An in-depth, site-specific investigation of each significant potential source of contamination is not possible. **Therefore, this assessment should be used as a planning tool, taken into account with local knowledge and concerns, to develop and implement appropriate protection measures for this source. The results should not be used as an absolute measure of risk and they should not be used to undermine public confidence in the water system.**

The ultimate goal of the assessment is to provide data to local communities to develop a protection strategy for their drinking water supply system. The Idaho Department of Environmental Quality (DEQ) recognizes that pollution prevention activities generally require less time and money to implement than treatment of a public water supply system once it has been contaminated. DEQ encourages communities to balance resource protection with economic growth and development. The decision as to the amount and types of information necessary to develop a drinking water protection program should be determined by the local community based on its own needs and limitations. Wellhead or drinking water protection is one facet of a comprehensive growth plan, and it can complement ongoing local planning efforts.

Section 2. Conducting the Assessment

General Description of the Source Water Quality

The public drinking water system for the Hillview Subdivision is comprised of one ground water well that serves approximately 62 people through approximately 17 connections for community uses. Situated in Madison County, the well is located about 3 miles southwest of Rexburg and about 1000 feet west of Highway 20 (Figure 1).

There are no current significant potential water problems that affect the well of the Hillview Subdivision thus far. Total coliform bacteria have not been detected at the well or in the distribution system. The IOCs barium and fluoride were detected in the system at levels below the MCL. Nitrate concentrations have been recorded in the well at levels below 1.6 mg/L. The MCL for nitrate is 10 mg/L. No VOCs or SOCs has been detected in the well during any water chemistry tests. Countywide nitrogen fertilizer use, county level herbicide use, and total county level agricultural chemical use are rated as high for the area. Additionally, the delineation of the well crosses an atrazine (SOC) priority area.

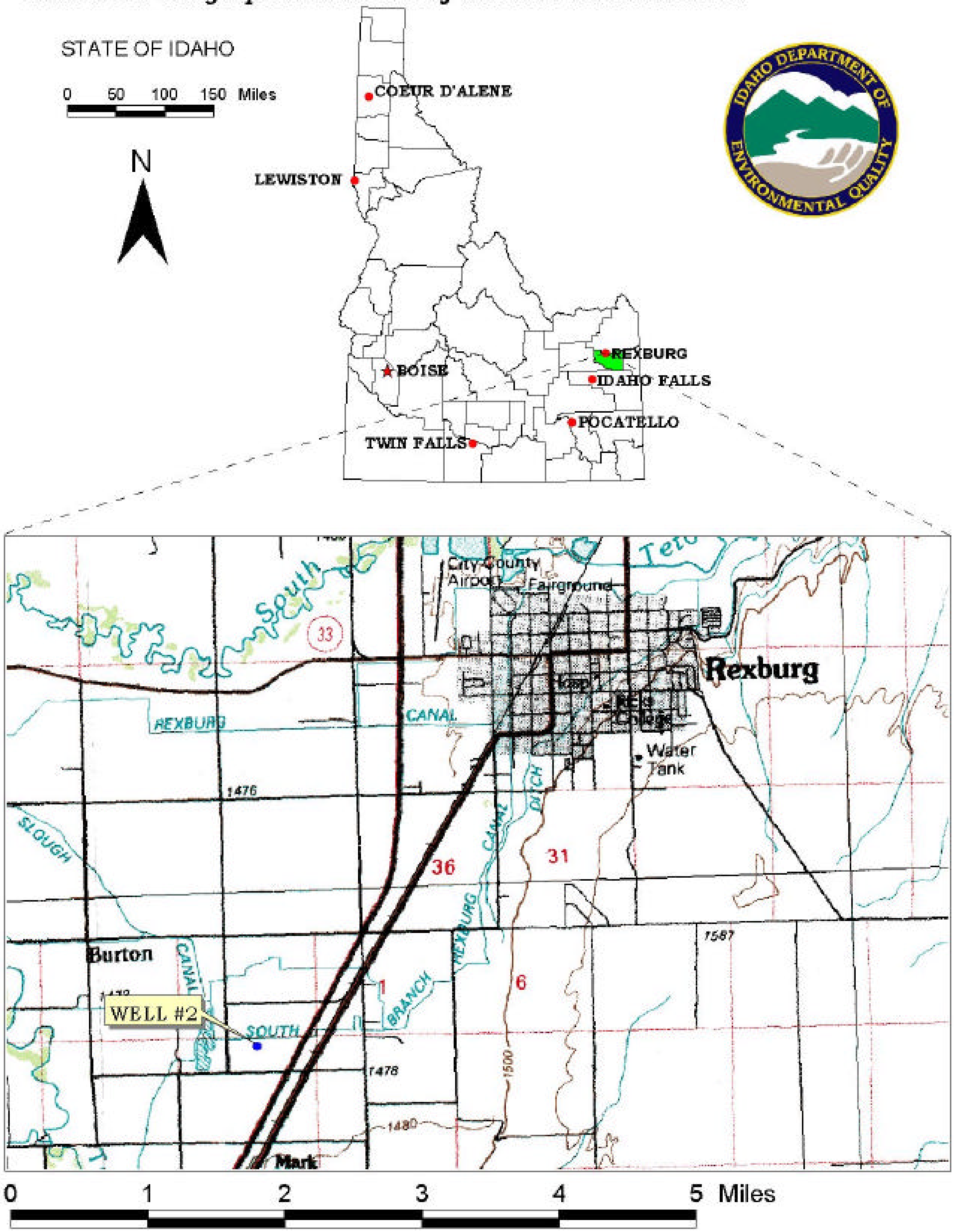
Defining the Zones of Contribution – Delineation

The delineation process establishes the physical area around a well that will become the focal point of the assessment. The process includes mapping the boundaries of the zone of contribution into time-of-travel (TOT) zones (zones indicating the number of years necessary for a particle of water to reach a well) for water in the aquifer. DEQ contracted with Washington Group, International (WGI) to perform the delineations using a refined computer model approved by the EPA in determining the 3-year (Zone 1B), 6-year (Zone 2), and 10-year (Zone 3) TOT for water associated with the Eastern Snake River Plain (ESRP) aquifer in the vicinity of the Hillview Subdivision. The computer model used site specific data, assimilated by WGI from a variety of sources including the Hillview Subdivision operator input, local area well logs, and hydrogeologic reports (detailed below).

The ESRP is a northeast trending basin located in southeastern Idaho. Ten thousand square miles of the basin are primarily filled with highly fractured layered Quaternary basalt flows of the Snake River Group, which are intercalated with terrestrial and lacustrine (lake-deposited) sediments along the margins (Garabedian, 1992, p. 5). Individual basalt flows range from 10 to 50 feet in thickness and average 20 to 25 feet (Lindholm, 1996, p. 14). Basalt is thickest in the central part of the eastern plain and thins toward the margins. Whitehead (1992, p. 9) estimates the total thickness of the flows to be as great as 5,000 feet. A thin layer (0 to 100 feet) of windblown and fluvial sediments overlies the basalt.

The plain is bound on the northeast by rocks of the Yellowstone Group (mainly rhyolite) and Idavada Volcanics to the southwest. The Snake River flows along part of the southern boundary and is the only drainage that leaves the plain. Rivers and streams entering the plain from the south are tributary to the Snake River. Other than the Big and Little Wood rivers, rivers entering from the north vanish into the highly transmissive basalts of the Snake River Plain aquifer.

FIGURE 1. Geographic Location of Hillview Subdividision



The layered basalts of the Snake River Group host one of the most productive aquifers in the United States. The aquifer is generally considered unconfined, yet it may be locally confined in some areas because of inter-bedded clay and dense unfractured basalt (Whitehead, 1992, p. 26). Whitehead (1992, p. 22) reports that well yields of 2,000 to 3,000 gal/min are common for wells open to less than 100 feet of the aquifer. Lindholm (1996, p. 18) estimates aquifer thickness to range from several hundred feet near the plain's margin to thousands of feet near the center.

The majority of aquifer recharge results from surface water irrigation activities (incidental recharge), which divert water from the Snake River and its tributaries (Ackerman, 1995, p. 4, and Garabedian, 1992, p. 11). Natural recharge occurs through stream losses, direct precipitation, and tributary basin underflow.

The Upper ESRP hydrologic province is located on the northeastern margin of the ESRP. The majority of the province is located above the confluence of the South and Henrys Forks of the Snake River in southwestern Madison County. The province occupies portions of Fremont, Madison, Jefferson, and Bonneville counties. The province covers 445 square miles, which is 4.3 percent of the ESRP's total area.

Published water table maps specific to the Upper ESRP regional aquifer are limited. The few area-specific maps that are available (e.g., Crosthwaite et al., 1967, p. 27, and Baker, 1991, p. 10) show similar patterns of flow to those depicted at the regional scale. Regional ground water flow is to the southwest paralleling the basin (Cosgrove et al., 1999, p. 21; deSonneville, 1972, p. 78; Garabedian, 1992, p. 48; and Lindholm, 1996, p. 23). Ground water flow direction at the local scale is thought to be highly variable due to preferential flow paths through the fractured and layered basalts.

This delineated source water assessment area for the Hillview Subdivision well can best be described as a pie-shaped corridor nearly 8 miles long extending southeast from the wellhead (Figure 2). The actual data used by WGI in determining the source water assessment delineation areas are available from DEQ upon request.

Identifying Potential Sources of Contamination

A potential source of contamination is defined as any facility or activity that stores, uses, or produces, as a product or by-product, the contaminants regulated under the Safe Drinking Water Act and others, such as cryptosporidium, and has a sufficient likelihood of releasing such contaminants at levels that could pose a concern relative to drinking water sources. The goal of the inventory process is to locate and describe those facilities, land uses, and environmental conditions that are potential sources of groundwater contamination. The locations of potential sources of contamination within the delineation areas were obtained by field surveys conducted by DEQ and from available databases.

Land use within the immediate area of the Hillview Subdivision well consists of residential use, while the surrounding area is predominantly transportation use and irrigated agriculture.

It is important to understand that a release may never occur from a potential source of contamination provided they are using best management practices. Many potential sources of contamination are regulated at the federal level, state level, or both to reduce the risk of release. Therefore, when a business, facility, or property is identified as a potential contaminant source, this should not be interpreted to mean that this business, facility, or property is in violation of any local, state, or federal environmental law or regulation. What it does mean is that the potential for contamination exists due to the nature of the business, industry, or operation. There are a number of methods that water systems can use to work cooperatively with potential sources of contamination, including educational visits and inspections of stored materials. Many owners of such facilities may not even be aware that they are located near a public water supply well.

Contaminant Source Inventory Process

A two-phased contaminant inventory of the study area was conducted in July through August 2001. The first phase involved identifying and documenting potential contaminant sources within the Hillview Subdivision Source Water Assessment Area (Figure 2) through the use of computer databases and Geographic Information System maps developed by DEQ. The second, or enhanced, phase of the contaminant inventory involved contacting the operator to identify and add any additional potential sources in the area.

The delineated source water area encompasses a pie-shaped corridor of land between the well site and the town of Sunnydell. The delineation (Table 1, Figure 2) of the well has four potential contaminant sources. These sources include a general contractor/construction site, Highway 20, the Yellowstone Highway (Highway 33), and the Sunnydell Canal. Not included in the table but used in the susceptibility assessment, the sanitary survey identified a pasture with grazing cattle less than 50 feet from the well.

Table 1. Well of the Hillview Subdivision, Potential Contaminant Inventory

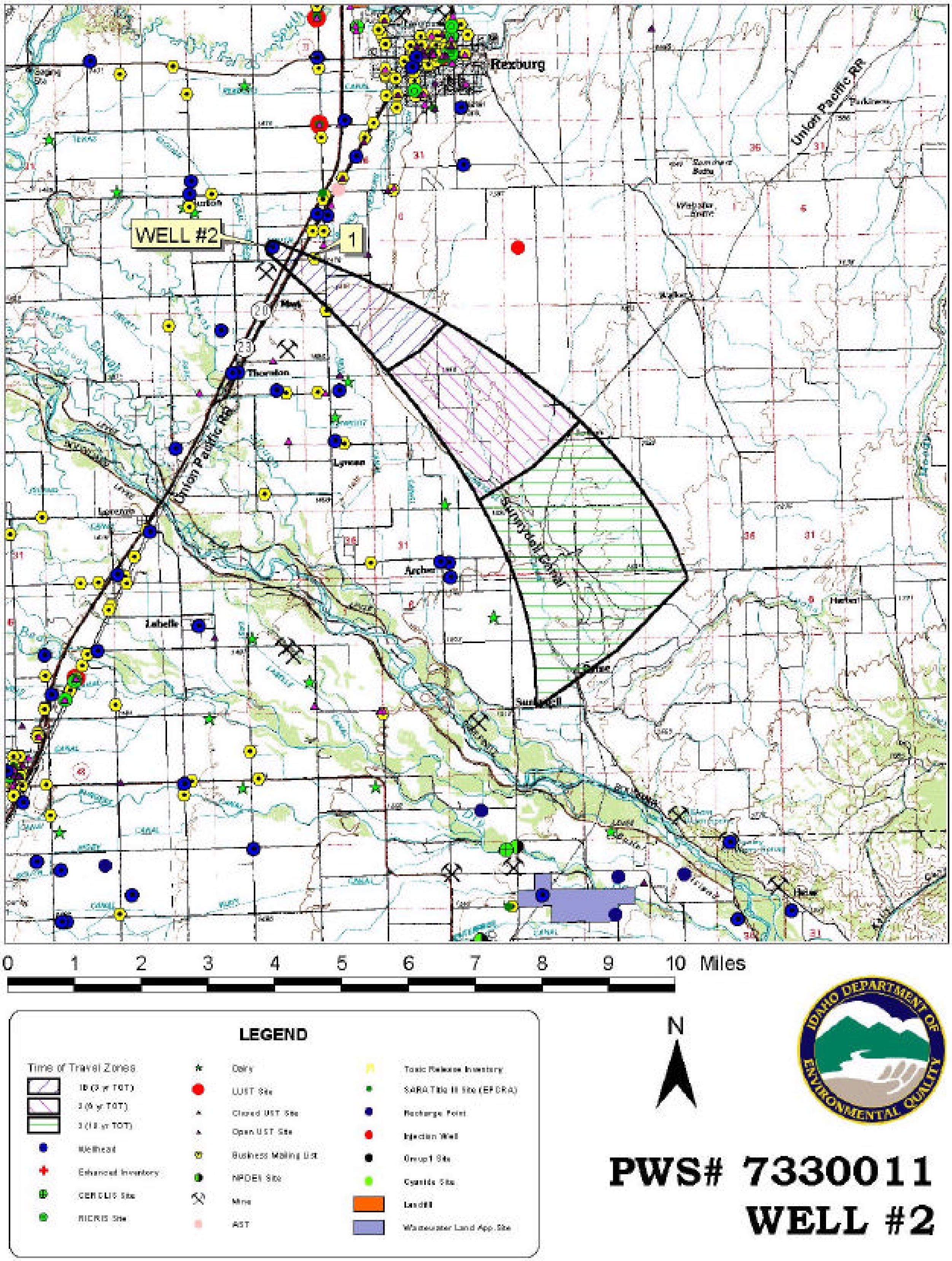
Site #	Source Description[1]	TOT ZONE[2]	Source of Information	Potential Contaminants[3]
1	General Contractors	0 - 3	Database Search	IOC, VOC, SOC
	Highway 20	0 - 3	GIS Map	IOC, VOC, SOC, Microbials
	Yellowstone Highway	0 - 3	GIS Map	IOC, VOC, SOC, Microbials
	Sunnydell Canal	3 - 10	GIS Map	IOC, VOC, SOC

[2] TOT = time-of-travel (in years) for a potential contaminant to reach the wellhead
[3] IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical

Section 3. Susceptibility Analyses

The water system's susceptibility to contamination was ranked as high, moderate, or low risk according to the following considerations: hydrologic characteristics, physical integrity of the well, land use characteristics, and potentially significant contaminant sources. Each of these three categories carries the same weight in the final assessment, meaning that a low score in one category coupled with higher scores in the other categories can still lead to a overall susceptibility of high. The susceptibility rankings are specific to a particular potential contaminant or category of contaminants. Therefore, a high susceptibility rating relative to one potential contaminant does not mean that the water system is at the same risk for all other potential contaminants. The relative ranking that is derived for each well is a qualitative, screening-level step that, in many cases, uses generalized assumptions and best professional judgement. Attachment A contains the susceptibility analysis worksheet for the system. The following summaries describe the rationale for the susceptibility ranking.

Figure 2. Hillview Subdivision Delineation Map and Potential Contaminant Source Locations



Hydrologic Sensitivity

The hydrologic sensitivity of a well is dependent upon four factors: the surface soil composition, the material in the vadose zone (between the land surface and the water table), the depth to first ground water, and the presence of a 50-foot thick fine-grained zone above the producing zone of the well. Slowly draining soils such as silt and clay typically are more protective of ground water than coarse-grained soils such as sand and gravel. Similarly, fine-grained sediments in the subsurface and a water depth of more than 300 feet protect the ground water from contamination.

Hydrologic sensitivity rates high for the well (Table 2). The soils underlying the delineated area are in the moderate to well-draining soil class. A well log was unavailable, preventing the determination of the first ground water, the make-up of the vadose zone, and the presence of a 50-foot thick fine-grained zone above the producing zone of the well.

Well Construction

Well construction directly affects the ability of the well to protect the aquifer from contaminants. System construction scores are reduced when information shows that potential contaminants will have a more difficult time reaching the intake of the well. Lower scores imply a system is less vulnerable to contamination. For example, if the well casing and annular seal both extend into a low permeability unit, then the possibility of contamination is reduced and the system construction score goes down. If the highest production interval is more than 100 feet below the water table, then the system is considered to have better buffering capacity. If the wellhead and surface seal are maintained to standards, as outlined in sanitary surveys, then contamination down the well bore is less likely. If the well is protected from surface flooding and is outside the 100-year floodplain, then contamination from surface events is reduced.

The well of the Hillview Subdivision has a moderate system construction score. According to the 1997 sanitary survey, the wellhead and surface seals are maintained and the well is protected from surface runoff. The lack of a well log prevented a determination of the depth of the well, the casing size, the placement of the well casing and annular seal and the depth of the highest production interval of the well.

Though the well may have been in compliance with standards when it was completed, current public water system (PWS) well construction standards are more stringent. The Idaho Department of Water Resources *Well Construction Standards Rules* (1993) require all PWSs to follow DEQ standards as well. IDAPA 58.01.08.550 requires that PWSs follow the *Recommended Standards for Water Works* (1997) during construction. These standards include provisions for well screens, pumping tests, and casing thicknesses to name a few. Table 1 of the *Recommended Standards for Water Works* (1997) lists the required steel casing thickness for various diameter wells.

Potential Contaminant Source and Land Use

The Hillview Subdivision well rates high for IOCs (i.e. nitrates arsenic), VOCs (i.e. petroleum products) and SOCs (i.e. pesticides) and it rates moderate for microbial contaminants (i.e. bacteria). The major transportation corridors in the 3-year TOT and the intense agricultural land use around the wellhead account for the largest contribution of points to the potential contaminant inventory rating.
The delineation crosses an atrazine herbicide priority area. No total coliform bacteria were detected in the system of the well thus far. The well has consistently shown nitrate (an IOC) at levels below 1.6mg/L (the MCL is 10 mg/L). Barium and Fluoride (IOCs) have been detected in the well at levels far below the MCLs. No VOCs or SOCs have been detected in the water system.

Final Susceptibility Ranking

A detection above a drinking water standard MCL, any detection of a VOC or SOC, or a confirmed detection of total coliform bacteria or fecal coliform bacteria at the wellhead will automatically give a high susceptibility rating to a well despite the land use of the area because a pathway for contamination already exists. Additionally, if there are contaminant sources located within 50 feet of the source then the wellhead will automatically get a high susceptibility rating. In this case, the well lies within 50 feet of a pasture that has grazing cattle. This location of this source gave an automatic high susceptibility rating to IOCs and microbial contamination. Hydrologic sensitivity and system construction scores are heavily weighted in the final scores. Having multiple potential contaminant sources in the 0- to 3-year time of travel zone (Zone 1B) and agricultural land contribute greatly to the overall ranking. In terms of total susceptibility, the well of the Hillview Subdivision rates high for all potential contaminant categories.

Table 2. Summary of Hillview Subdivision Susceptibility Evaluation

Well	Susceptibility Scores[1]									
	Hydrologic Sensitivity	Contaminant Inventory				System Construction	Final Susceptibility Ranking			
		IOC	VOC	SOC	Microbials		IOC	VOC	SOC	Microbials
Well #1	H	H	H	H	M	M	H(*)	H	H	H*

[1]**H = High Susceptibility, M = Moderate Susceptibility, L = Low Susceptibility,**
IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical
*** = Automatic high score due to a pasture located within 50 feet of the wellhead**
(*) = Automatic high score due to a pasture located within 50 feet of the wellhead and a high score due to a high number of points

Susceptibility Summary

Overall, the Hillview Subdivision water system rates high for IOCs, VOCs, SOCs and microbial contaminants. A pasture lies within 50 feet of the wellhead, giving an automatic high score to IOCs and microbial contaminants. The intense agricultural land use as well as the high hydrologic sensitivity score contributed greatly to the overall susceptibility rating.

There are no current significant potential water problems that affect the Hillview Subdivision well thus far. No total coliform bacteria have been detected in the system. The IOC barium and fluoride were detected in the system at levels below the MCL. Nitrate concentrations have been recorded in the system's water at levels below 1.6 mg/L since that time. The MCL for nitrate is 10 mg/L. No VOC or SOC has been detected in the well during any water chemistry tests. Countywide nitrogen fertilizer use, county level herbicide use, and total county level agricultural chemical use are rated as high for the area. Additionally, the delineation of the well crosses an atrazine herbicide priority area.

Section 4. Options for Drinking Water Protection

The susceptibility assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what the susceptibility ranking a source receives, protection is always important. Whether the source is currently located in a "pristine" area or an area with numerous industrial and/or agricultural land uses that require surveillance, the way to ensure good water quality in the future is to act now to protect valuable water supply resources.

An effective drinking water protection program is tailored to the particular local drinking water protection area. A community with a fully developed drinking water protection program will incorporate many strategies. For the well of the Hillview Subdivision, drinking water protection activities should focus on correcting any deficiencies outlined in the sanitary survey, including protection of the well from surface flooding. Also, disinfection practices should be implemented if microbial contamination becomes a problem. No chemicals should be stored or applied within the 50-foot radius of the wellhead. The Hillview subdivision may want to consider moving or reducing the use of the pasture to a distance of more than 50 feet from the well to avoid contamination from leaching or runoff.

Additionally, there should be a focus on the implementation of practices aimed at reducing the leaching of farm chemicals from agricultural land within the designated source water area and awareness of the potential contaminant sources within the delineation zone. Since much of the designated protection areas are outside the direct jurisdiction of the Hillview Subdivision, collaboration and partnerships with state and local agencies, and industry groups should be established and are critical to the success of drinking water protection.

Due to the time involved with the movement of ground water, drinking water protection activities should be aimed at long-term management strategies even though these strategies may not yield results in the near term. A strong public education program should be a primary focus of any drinking water protection plan as the delineation is near to urban and residential land uses. Public education topics could include proper lawn and garden care practices, household hazardous waste disposal methods, proper care and maintenance of septic systems, and the importance of water conservation to name but a few. There are multiple resources available to help communities implement protection programs, including the Drinking Water Academy of the EPA. As there are transportation corridors through the delineation, the Idaho department of transportation should be involved in protection activities. Drinking water protection activities for agriculture should be coordinated with the Idaho State Department of Agriculture, the Soil Conservation Commission, the local Soil Conservation District, and the Natural Resources Conservation Service.

A community must incorporate a variety of strategies in order to develop a comprehensive drinking water protection plan, be they regulatory in nature (i.e. zoning, permitting) or non-regulatory in nature (i.e. good housekeeping, public education, specific best management practices). For assistance in developing protection strategies please contact the Idaho Falls Regional Office of the DEQ or the Idaho Rural Water Association.

Assistance

Public water supplies and others may call the following DEQ offices with questions about this assessment and to request assistance with developing and implementing a local protection plan. In addition, draft protection plans may be submitted to the DEQ office for preliminary review and comments.

Idaho Falls Regional DEQ Office	(208) 528-2650
State DEQ Office	(208) 373-0502

Website: www.deq.state.id.us

Water suppliers serving fewer than 10,000 persons may contact Ms. Melinda Harper, Idaho Rural Water Association, at 208-343-7001 (mlharper@idahoruralwater.com) for assistance with drinking water protection (formerly wellhead protection) strategies.

POTENTIAL CONTAMINANT INVENTORY
LIST OF ACRONYMS AND DEFINITIONS

AST (Aboveground Storage Tanks) – Sites with aboveground storage tanks.

Business Mailing List – This list contains potential contaminant sites identified through a yellow pages database search of standard industry codes (SIC).

CERCLIS – This includes sites considered for listing under the **Comprehensive Environmental Response Compensation and Liability Act (CERCLA)**. CERCLA, more commonly known as ASuperfund≅ is designed to clean up hazardous waste sites that are on the national priority list (NPL).

Cyanide Site – DEQ permitted and known historical sites/facilities using cyanide.

Dairy – Sites included in the primary contaminant source inventory represent those facilities regulated by Idaho State Department of Agriculture (ISDA) and may range from a few head to several thousand head of milking cows.

Deep Injection Well – Injection wells regulated under the Idaho Department of Water Resources generally for the disposal of stormwater runoff or agricultural field drainage.

Enhanced Inventory – Enhanced inventory locations are potential contaminant source sites added by the water system. These can include new sites not captured during the primary contaminant inventory, or corrected locations for sites not properly located during the primary contaminant inventory. Enhanced inventory sites can also include miscellaneous sites added by the Idaho Department of Environmental Quality (DEQ) during the primary contaminant inventory.

Floodplain – This is a coverage of the 100year floodplains.

Group 1 Sites – These are sites that show elevated levels of contaminants and are not within the priority one areas.

Inorganic Priority Area – Priority one areas where greater than 25% of the wells/springs show constituents higher than primary standards or other health standards.

Landfill – Areas of open and closed municipal and non-municipal landfills.

LUST (Leaking Underground Storage Tank) – Potential contaminant source sites associated with leaking underground storage tanks as regulated under RCRA.

Mines and Quarries – Mines and quarries permitted through the Idaho Department of Lands.)

Nitrate Priority Area – Area where greater than 25% of wells/springs show nitrate values above 5 mg/L.

NPDES (National Pollutant Discharge Elimination System) – Sites with NPDES permits. The Clean Water Act requires that any discharge of a pollutant to waters of the United States from a point source must be authorized by an NPDES permit.

Organic Priority Areas – These are any areas where greater than 25 % of wells/springs show levels greater than 1% of the primary standard or other health standards.

Recharge Point – This includes active, proposed, and possible recharge sites on the Snake River Plain.

RICRIS – Site regulated under **Resource Conservation Recovery Act (RCRA)**. RCRA is commonly associated with the cradle to grave management approach for generation, storage, and disposal of hazardous wastes.

SARA Tier II (Superfund Amendments and Reauthorization Act Tier II Facilities) – These sites store certain types and amounts of hazardous materials and must be identified under the Community Right to Know Act.

Toxic Release Inventory (TRI) – The toxic release inventory list was developed as part of the Emergency Planning and Community Right to Know (Community Right to Know) Act passed in 1986. The Community Right to Know Act requires the reporting of any release of a chemical found on the TRI list.

UST (Underground Storage Tank) – Potential contaminant source sites associated with underground storage tanks regulated as regulated under RCRA.

Wastewater Land Applications Sites – These are areas where the land application of municipal or industrial wastewater is permitted by DEQ.

Wellheads – These are drinking water well locations regulated under the Safe Drinking Water Act. They are not treated as potential contaminant sources.

NOTE: Many of the potential contaminant sources were located using a geocoding program where mailing addresses are used to locate a facility. Field verification of potential contaminant sources is an important element of an enhanced inventory.

Where possible, a list of potential contaminant sites unable to be located with geocoding will be provided to water systems to determine if the potential contaminant sources are located within the source water assessment area.

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Attachment A

Hillview Subdivision Susceptibility Analysis Worksheet

The final scores for the susceptibility analysis were determined using the following formulas:

1) VOC/SOC/IOC Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.2)

2) Microbial Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.375)

Final Susceptibility Scoring:

0 - 5 Low Susceptibility

6 - 12 Moderate Susceptibility

≥ 13 High Susceptibility

Ground Water Susceptibility Report   Public Water System Name : HILLVIEW SUBD   Well# : WELL #2

Public Water System Number 7330011   11/8/2001 4:13:24 PM

1. System Construction		SCORE			
Drill Date					
Driller Log Available	NO				
Sanitary Survey (if yes, indicate date of last survey)	YES	1997			
Well meets IDWR construction standards	NO	1			
Wellhead and surface seal maintained	YES	0			
Casing and annular seal extend to low permeability unit	NO	2			
Highest production 100 feet below static water level	NO	1			
Well located outside the 100 year flood plain	YES	0			
	Total System Construction Score	4			
2. Hydrologic Sensitivity					
Soils are poorly to moderately drained	NO	2			
Vadose zone composed of gravel, fractured rock or unknown	YES	1			
Depth to first water > 300 feet	NO	1			
Aquitard present with > 50 feet cumulative thickness	NO	2			
	Total Hydrologic Score	6			
3. Potential Contaminant / Land Use - ZONE 1A		IOC Score	VOC Score	SOC Score	Microbial Score
Land Use Zone 1A	IRRIGATED CROPLAND	2	2	2	2
Farm chemical use high	YES	2	0	2	
IOC, VOC, SOC, or Microbial sources in Zone 1A	YES	YES	NO	NO	YES
	Total Potential Contaminant Source/Land Use Score - Zone 1A	4	2	4	2
Potential Contaminant / Land Use - ZONE 1B					
Contaminant sources present (Number of Sources)	YES	3	3	3	3
(Score = # Sources X 2) 8 Points Maximum		6	6	6	6
Sources of Class II or III leacheable contaminants or	YES	6	3	3	
4 Points Maximum		4	3	3	
Zone 1B contains or intercepts a Group 1 Area	YES	0	0	2	0
Land use Zone 1B	Greater Than 50% Irrigated Agricultural Land	4	4	4	4
	Total Potential Contaminant Source / Land Use Score - Zone 1B	14	13	15	10
Potential Contaminant / Land Use - ZONE II					
Contaminant Sources Present	YES	2	2	2	
Sources of Class II or III leacheable contaminants or	YES	1	1	1	
Land Use Zone II	Greater Than 50% Irrigated Agricultural Land	2	2	2	
	Potential Contaminant Source / Land Use Score - Zone II	5	5	5	0
Potential Contaminant / Land Use - ZONE III					
Contaminant Source Present	YES	1	1	1	
Sources of Class II or III leacheable contaminants or	YES	1	1	1	
Is there irrigated agricultural lands that occupy > 50% of	YES	1	1	1	
	Total Potential Contaminant Source / Land Use Score - Zone III	3	3	3	0
Cumulative Potential Contaminant / Land Use Score		26	23	27	12
4. Final Susceptibility Source Score		15	15	15	14
5. Final Well Ranking		High	High	High	High